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MAINTENANCE SYSTEM OF GIZA 89 EGYPTIAN COTTON CULTIVAR

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ABSTRACT

Field work and experiments were conducted at Gemmeiza Agricultural Experiment Station during 1999, 2000, 2001 and 2002 growing seasons. The results obtained indicated that pure line pedigree selection method for renewing Giza 89 breeder's seed could mean that an attempt have been made to prevent genetic loss and not necessarily imply a genetic gain. The selection technique for producing breeder's seed of Giza 89 cultivar was valid and proved to be effective in holding the variety true to type.

INTRODUCTION

Supplying planting seed to farmers involves three separate activities, varietal development, varietal maintenance and seed multiplication, (Lewis, 1970). Varietal maintenance of Egyptian cotton varieties played a major role in the breeding program with the fact that high quality is the principal merit of the Egyptian cotton. In this concept, the present research highlights the procedures and considerations carried out to maintain and renew the breeder's seed of the Egyptian long staple cotton variety Giza 89.

Therefore, the main objectives of the present study were to follow the steps of producing a new nucleolus (denotes the breeder's seed in Egyptian terms) of the cotton variety Giza 89. Maintenance of the Egyptian cotton varieties have been reported by many workers, Turner (1963) reported a method of pedigree system, where the variety Acala 42 was maintained by blending seeds of several component strains. Walker (1964) and Riggs (1967) investigated a model bulk system designed to stabilize a variety. They concluded that this system could be considered as a good maintenance procedure for a variety already released. Al-Didi (1974) stated that it was advantageous to mix the seed of chosen progenies, whereas, the component progenies of seed mixture may respond differently to environmental variation. He added that if genotype x environment effects were significant, mixture of seed might show less fluctuation in yield and quality than individual progenies.

Many investigators at Cotton Research Institute worked on maintenance procedures of Egyptian cotton cultivars i.e. Younis *et al.* (1993); Abo-Arab *et al.* (1995); Lasheen (1997); Hemaida *et al.* (2000) and El-Disouqi (2001).

The present method of maintaining Egyptian cotton varieties is a pedigree method based on mixing progenies of several plants instead of progeny increase of one selected plant.

MATERIALS AND METHODS

The base population used in this study was 60 elite plants selected from the pure line method-pedigree selection for renewing the breeder's stock seed of Giza 89 cultivar, at Gemmeiza Agric. Expt. Res. Station in the growing season of 1998 season. Data were recorded on a single plant basis as well as plot mean basis, through field evaluation and laboratory testing for the determinations of:

1. Earliness index (E.I.) weight of seed cotton yield at first picking as a percentage of the weight of total yield.
2. Seed cotton yield per feddan (S.C.Y/fed.) estimated as the weight of seed cotton yield in kentar per feddan.
3. Lint yield per feddan (L.Y./fed.) estimated as the weight of lint yield in kentar per feddan.
4. Boll weight (B.W.) the average boll weight in grams of 25 sound bolls picked at random from each plot.
5. Lint percentage (L.P.%) as the weight of lint obtained from a seed cotton., sample

$$\text{L.P. \%} = \frac{\text{Weight of lint in the sample}}{\text{Weight of seed cotton in the sample}} \times 100$$

6. Seed index (S.I.) the weight of 100 seeds in grams.
7. Fiber fineness (F.F.) was carried out using micronaire reading.
8. Fiber length (F.L.) the length parameters 2.5% span length and 50% span length were measured by the fibrograph.
9. Maturity in percent.
10. Yarn strength (Y.St.) is the product of lea strength in pounds x yarn strength (60's carded) least yarn count the 60 Brand tester.

In 1 999 growing season, the selfed seeds of the 60 seelcted elite plants of Giza 89 variety were grown at Gemmeiza farm, Gharbiya governorate, in the breeding plot. Each selected plant was grown in four rows. 7.5 m long and 60 cm a part, one row was left unplanted between each two consecutive planted rows to facilitate plants screening and selfing. Each row contained 10 single plants spaced 75 cm. The open-pollinated seeds of the same 60 selected elite plants were grown in adjacent rows, representing the 60 bulked families. At flowering stage, self-pollination was practiced for all individual plants.

In the growing season of 2000, selfed seeds of 60 selected plants were grown in progeny rows conveniently named A increase lines, as well as, open pollinated seeds of the same 60 type plants were grown in adjacent rows.

In 2001 growing season, the selfed seeds of 22 selected families from A increases were grown in increase B plots. A yield trial comprising the 22 selected lines (natural seeds) and two strains of Giza 89 namely, Giza 89/99 and Giza 89/2000 as controls were conducted. The trial was based on randomized complete blocks design with four replications. The families were measured for yield, agronomic, fiber properties and earliness. Accordingly, 11

type families were selected on the basis standard levels of agronomic and quality traits of the controls as well as bulked family means, according to their superiority in varietal type and uniform. However, progenies were selected with the restriction that the minimum levels of the traits were as illustrated by the controls (comparisons). A difference in a range of ± 1/32 inch in fiber length ± 6 milletex in fiber fineness and ± 5% in yarn strength was neglected (Abo-Sehly, 1959).

In 2002 growing season, the pure selfed seeds of the 11 type selected families were massed to form the new nucleolus (Breeder's seed) of Giza 89 variety and cultivated in about 41 feddans at the same area of the propagated fields of Giza 89 variety at Gemmeiza Agric. Res. Station.

RESULTS AND DISCUSSION

Means of agronomic and fiber properties for the 60 Giza 89 bulked families in 1999 season were estimated and the results are shown in Table 1. With regard to the families compared, it is clear that no substantial differences for all traits were found. These results were in agreement with those obtained by Abo-Arab *et al.* (1995), Lasheen (1997) and El-Disouqi (2001).

Table (1): Means of agronomic and fiber properties for the 60 Giza 89 families in 1999 growing season.

Families	Boll weight gm	Lint percentage %	Seed index gm	Maturity %	Fiber length (fibrograph)		Fineness		Yarn strength 60's carded
					SL 2.5%	SL 50%	Millitex	Micronaire	
1/99	3.2	36.0	10.8	77	32.2	16.0	152	3.5	2330
2/99	3.0	37.0	10.2	75	32.5	16.3	150	3.5	2330
3/99	3.4	36.3	10.8	77	32.2	15.9	150	3.6	2265
4/99	3.5	36.2	11.4	75	32.5	16.3	151	3.6	2360
5/99	3.1	36.0	10.7	77	32.5	16.2	148	3.5	2220
6/99	2.9	36.3	9.8	78	32.5	16.3	150	3.6	2335
7/99	2.9	36.8	10.0	75	32.0	16.0	148	3.4	2225
8/99	3.2	36.0	10.7	80	32.0	16.0	151	3.7	2200
9/99	3.2	36.4	10.9	80	32.2	16.2	149	3.7	2175
10/99	3.2	37.3	10.5	77	32.5	16.3	152	3.7	2130
11/99	3.3	36.9	10.5	80	31.8	15.8	155	3.8	2100
12/99	3.3	38.1	10.2	82	31.0	15.5	158	4.0	2060
13/99	3.1	37.5	10.3	79	31.7	15.9	156	4.0	2105
14/99	3.0	36.5	10.6	83	32.0	15.9	158	4.1	2140
15/99	3.3	36.7	11.0	85	32.0	16.1	154	4.0	2195
16/99	3.2	36.5	10.9	78	31.8	15.8	150	3.6	2250
17/99	3.2	36.1	10.8	79	32.6	16.0	152	3.7	2270
18/99	3.1	36.9	10.4	79	31.8	15.9	153	3.8	2290
19/99	3.1	37.1	10.7	79	31.8	15.9	151	3.7	2360
20/99	3.0	37.4	10.4	83	32.0	16.0	150	3.6	2260
21/99	3.0	37.2	10.3	84	32.0	16.0	156	4.0	2355
22/99	3.2	37.0	10.8	89	31.8	16.0	151	3.6	2220
23/99	3.1	36.3	10.8	81	32.0	169.0	153	3.8	2220
24/99	3.1	35.9	11.4	78	32.0	16.3	157	3.8	2225
25/99	3.0	38.5	10.2	81	31.8	15.9	158	3.9	2325
26/99	3.1	38.0	11.0	81	32.2	16.3	150	3.7	2340
27/99	3.0	37.3	10.2	77	32.5	15.9	151	3.6	2175
28/99	3.3	37.2	11.2	81	32.3	16.1	156	4.0	2030
29/99	3.1	37.0	11.2	79	32.1	16.1	157	4.0	2155
30/99	3.1	37.0	10.7	82	32.5	16.3	158	4.1	2175

*Table (1): Continued.

Families	Boll weight gm	Lint percentage %	Seed index gm	Maturity %	Fiber length (fibrograph)		Fineness		Yarn strength 60's carded
					SL 2.5%	SL 50%	Millitex	Micronaire	
31/99	3.1	37.5	10.3	82	32.5	16.5	152	3.7	2225
32/99	3.3	37.0	10.8	81	32.0	16.0	158	4.1	2300
33/99	3.2	36.7	10.8	79	32.5	16.2	154	3.7	2150
34/99	3.3	37.4	10.7	80	32.6	16.5	156	3.8	2270
35/99	3.2	36.0	11.2	80	32.5	16.5	150	3.7	2450
36/99	3.1	36.3	10.7	83	32.0	15.9	152	3.8	2340
37/99	3.2	36.8	10.6	83	32.1	16.0	155	3.9	2290
38/99	3.0	37.1	10.3	80	32.2	16.0	156	3.8	2245
39/99	3.0	37.8	10.1	80	32.0	16.0	152	3.7	2315
40/99	3.0	36.6	10.2	79	32.3	16.2	156	3.8	2255
41/99	3.2	37.6	10.7	78	32.0	15.8	157	3.7	2360
42/99	3.2	35.9	10.7	81	32.0	16.0	160	4.0	2395
43/99	3.1	36.5	10.7	81	32.5	16.3	161	4.0	2295
44/99	3.1	36.7	10.7	83	32.3	16.2	160	4.1	2235
45/99	2.9	37.6	10.6	82	31.6	16.0	154	4.1	2360
46/99	3.3	37.4	10.7	76	31.8	15.9	153	3.6	2245
47/99	3.3	36.3	10.9	84	31.8	16.0	150	3.6	2440
48/99	3.3	36.6	10.7	79	31.8	16.0	155	4.0	2220
49/99	3.2	36.6	10.7	81	31.5	16.0	150	3.7	2320
50/99	3.3	37.5	10.3	84	31.6	15.8	147	3.7	2450
51/99	3.4	35.9	10.8	83	31.5	15.7	148	3.7	2475
52/99	3.2	36.6	10.2	83	32.0	16.0	147	3.7	2320
53/99	3.2	36.1	10.4	79	31.2	15.6	147	3.6	2190
54/99	3.2	35.9	10.9	81	31.8	16.0	153	3.8	2170
55/99	3.1	36.5	10.1	85	32.5	16.3	148	3.8	2210
56/99	3.2	36.2	10.9	79	32.3	16.4	148	3.4	2000
57/99	3.1	37.6	9.8	82	32.2	16.2	147	3.7	2000
58/99	3.2	37.7	10.8	84	32.5	16.3	150	3.9	2070
59/99	3.1	37.4	10.4	84	31.8	15.7	148	3.8	2130
60/99	3.2	36.2	10.6	84	31.9	15.6	154	4.0	2000
$\bar{X}$ families	3.2	36.9	10.6	80.3	32.1	16.1	152.6	3.8	2283
$\bar{X}$ Comparisons	3.1	36.8	10.4	78.3	32.1	16.0	150.0	3.7	2082

Results in Table 2 showed no differences in agronomic and quality traits between the selected 60 increases A families and the controls while fiber length at 2.5% staple length and yarn strength exhibited by selection some what better values than the controls, suggesting that selection was effective for maintenance these traits.

Means of agronomic and fiber properties for the 22 selected families compared with the two latest strains of Giza 89 are shown in Table 3. No significant differences were observed between the families and comparisons for most studied traits. Significant differences were detected among families for seed index and boll weight traits only. While, the rest characters showed no significant differences among the families. These results could be due to environmental fluctuations affected the seed size and/or number of seeds/boll. These results are in line with the statements of Lewis (1970) who reported that maintenance procedures could mean that an attempt have been made to prevent genetic loss.

Table (2): Means of agronomic and fiber properties for the 60 Giza 89 selected increases A families in 2000 growing season.

Families		Boll weight gm	Lint percentage %	Seed index gm	Maturity %	Fiber length (fibrograph)		Fineness		Yarn strength 60's carded
						SL 2.5%	SL 50%	Millitex	Micronaire	
2/99	-1	3.4	36.8	11.4	84	32.2	16.2	168	4.6	2265
2/99	-2	3.4	37.0	11.7	85	33.6	16.8	167	4.6	2370
2/99	-15	3.2	35.4	11.7	89	33.2	16.5	168	4.6	2370
3/99	-22	3.5	36.0	11.4	86	33.7	16.8	168	4.6	2280
15/99	-7	3.5	36.2	11.6	87	33.3	16.5	166	4.5	2275
15/99	-31	3.6	36.5	11.7	90	32.8	16.0	167	4.6	2350
16/99	-12	3.4	37.0	11.1	88	32.5	15.8	165	4.5	2315
16/99	-15	3.4	35.2	12.0	82	32.4	15.8	166	4.3	2370
18/99	-4	3.4	37.1	11.4	90	32.2	15.8	167	4.5	2360
18/99	-13	3.5	36.0	11.3	85	32.2	15.8	160	4.4	2295
18/99	-24	3.7	35.9	11.8	86	33.2	16.4	166	4.4	2430
18/99	-36	3.4	35.3	12.0	92	32.8	16.0	168	4.6	2270
19/99	-14	3.6	36.8	11.6	92	32.6	16.2	162	4.3	2060
19/99	-32	3.5	35.1	11.7	91	32.0	15.8	164	4.5	2060
19/99	-38	3.5	35.5	12.0	90	31.8	16.6	160	4.1	2230
20/99	-1	3.7	35.4	12.0	90	32.8	16.1	155	4.2	2215
20/99	-14	3.2	35.3	12.2	90	33.2	16.2	154	4.2	2255
20/99	-23	3.5	35.8	11.9	86	32.6	16.2	155	4.2	2350
20/99	-25	3.3	37.0	11.3	86	32.6	15.8	156	4.2	2100
20/99	-34	3.2	37.5	10.7	85	32.8	15.8	166	4.5	2330
21/99	-1	3.3	35.8	11.2	84	32.2	15.7	161	4.2	2280
21/99	-4	3.2	35.7	10.8	85	32.0	15.0	160	4.3	2150
21/99	-26	3.4	36.3	11.6	90	33.5	16.5	152	4.3	2150
21/99	-36	3.4	37.0	11.2	89	32.8	15.8	160	4.5	2320
22/99	-10	3.5	35.4	11.8	93	33.0	16.5	158	4.4	2440
22/99	-15	3.4	35.3	11.6	92	34.0	17.0	157	4.4	2260
22/99	-30	3.1	35.5	11.3	91	33.0	16.4	152	4.3	2380
22/99	-37	3.2	35.8	11.8	92	32.4	16.3	153	4.3	2280
23/99	-1	3.4	36.1	11.6	91	31.6	15.6	155	4.3	2440
23/99	-26	3.3	37.8	11.9	90	33.8	16.7	156	4.3	2210
23/99	-24	3.5	35.5	11.2	93	33.5	16.5	158	4.4	2260
23/99	-35	3.4	35.9	11.7	90	32.5	15.8	159	4.3	2320
25/99	-13	3.6	35.8	11.9	85	33.0	16.5	158	4.2	2285
25/99	-16	3.5	36.0	11.7	87	32.8	16.5	160	4.2	2265
25/99	-28	3.4	35.6	12.0	85	32.8	16.4	160	4.2	2055
25/99	-31	3.4	36.1	11.9	87	32.8	16.5	158	4.4	2110
25/99	-33	3.7	36.4	12.0	87	33.3	17.0	156	4.2	2180
25/99	-36	3.5	35.2	12.0	92	32.7	16.5	158	4.5	2120
26/99	-19	3.5	36.5	11.4	91	32.6	16.3	159	4.5	2100
26/99	-24	3.3	35.5	11.6	92	33.2	17.0	160	4.5	2160
26/99	-32	3.4	36.5	11.6	90	33.0	16.5	162	4.5	2150
26/99	-40	3.3	36.4	11.6	90	33.5	17.0	153	4.3	2105
27/99	-24	3.7	36.6	11.6	92	33.0	16.5	154	4.4	2270
27/99	-31	3.5	36.6	11.3	90	32.6	15.7	164	4.6	2100
28/99	-13	3.3	36.5	11.8	89	33.0	16.8	165	4.6	2465
28/99	-21	3.5	37.0	11.6	90	33.5	16.5	158	7.3	2210
28/99	-27	3.6	36.2	11.8	90	32.6	16.0	159	4.5	2235
28/99	-35	3.6	36.5	11.7	89	32.6	15.8	160	4.5	2095
29/99	-3	3.4	36.0	10.2	86	33.2	16.2	163	4.4	2180
29/99	-13	3.1	36.9	11.3	90	33.0	16.5	160	4.4	2280
30/99	-29	3.3	36.7	11.6	90	32.5	16.3	159	4.5	2210
30/99	-31	3.6	35.4	12.1	90	32.0	16.0	159	4.5	2260
31/99	-1	3.4	35.5	12.0	84	33.0	16.5	167	4.5	2255
32/99	-29	3.4	35.6	11.4	86	33.4	16.3	156	4.2	2250
34/99	-2	3.5	35.5	11.9	84	32.0	16.1	158	4.3	2170
34/99	-15	3.4	35.4	11.0	84	33.5	16.2	156	4.3	2245
41/99	-19	3.3	35.4	11.3	86	32.8	16.0	160	4.4	2305
41/99	-20	3.3	35.5	11.4	86	32.4	16.5	164	4.5	2290
44/99	-6	3.4	35.8	11.2	88	33.8	16.3	160	4.5	2220
44/99	-23	3.2	35.6	11.4	90	33.4	16.3	160	4.5	2240
$\bar{x}$ families		3.4	36.1	11.6	88	32.9	16.3	160.3	4.4	2267
$\bar{x}$ comparisons		3.3	36.0	11.2	85	32.1	16.0	158.1	4.2	2095

Table (3): Means of yield, yield components and fiber properties for the 22 selected increases B families in 2001 growing season.

Families	Yield and yield components						Maturity	Fiber properties				Yarn strength 60's carded
	Seed cotton yield K/F	Lint yield K/F	Lint percentage %	Seed index gm	Boll weight gm	Earliness %		Fiber length SL 2.5%	Fiber length SL 50%	Fiber fineness Millitex	Fiber fineness Micronaire	
25/99-13	12.70	14.40	37.9	10.8 efgh	3.3 bc	72	87	33.0	17.0	160	4.0	2280
3/99-22	12.18	14.28	39.0	10.9 defg	3.1 de	71	86	31.4	15.5	157	4.1	2270
26/99-24	13.18	14.22	36.0	11.1 cde	3.3 bc	75	87	32.2	16.5	161	4.0	2290
27/99-24	12.70	13.92	36.6	113 abc	3.4 ab	74	86	31.5	16.0	165	4.0	2045
15/99-7	11.36	13.62	40.0	10.8 efgh	3.1 de	75	85	31.6	15.7	157	4.0	2410
21/99-26	11.70	13.62	38.8	10.4 i	3.0 e	72	86	31.7	15.8	157	4.0	2125
26/99-32	12.40	13.62	36.6	10.4 i	3.32 bc	73	87	32.4	16.5	160	4.0	2160
2/99-1	11.98	13.44	37.3	11.0 cdef	3.2 cd	70	88	31.5	15.5	163	4.1	2340
18/99-24	11.62	13.44	38.6	10.4 i	3.1 de	74	86	31.7	16.0	156	4.0	2255
23/99-26	12.06	13.44	37.2	11.0 cdef	3.4 ab	72	86	31.8	16.0	154	3.9	2400
15/99-31	11.72	13.32	38.0	10.8 efgh	3.1 de	74	88	32.0	16.2	158	4.0	2320
20/99-34	11.28	12.96	38.3	10.9 defg	3.2 cd	74	86	31.8	15.6	157	4.0	2.200
25/99-33	11.56	12.96	37.4	10.5 hi	3.32 bc	75	89	32.3	16.0	153	4.0	2030
28/99-13	11.56	12.54	36.1	10.7 fghi	3.3 bc	74	86	32.4	16.5	164	4.0	2060
29/99-13	11.46	12.48	36.3	11.0 cdef	3.5 a	71	86	32.4	16.5	165	4.0	2020
2/99-2	10.80	12.30	38.1	11.5 ab	3.1 de	76	85	31.7	16.0	159	4.1	2380
18/99-4	10.94	12.18	37.2	10.9 defg	3.2 cd	72	87	31.6	16.2	157	4.0	2175
2/99-15	10.64	12.06	37.8	11.6 a	3.2 cd	71	85	32.6	16.2	157	4.0	2350
25/99-16	10.72	12.06	37.5	10.7 fghi	3.2 cd	75	87	32.5	16.2	155	4.0	2210
28/99-21	11.06	11.76	36.3	10.6 ghi	3.5 a	75	87	31.7	16.0	160	4.0	2080
28/99-27	10.56	11.52	36.3	11.0 cdef	3.3 bc	77	90	32.2	16.1	153	4.0	2060
21/99-36	9.22	10.38	37.5	11.2 bcd	3.2 cd	71	86	31.2	15.8	154	4.0	2230
$\bar{x}$ comparisons	10.85	12.08	37.2	10.6	3.1	70	85	31.6	15.8	156	4.0	2055
F-test	N.S	N.S	N.S	**	**	N.S	-	-	-	-	-	-

K = kentar = 157.5 kg Lint of the kentar = 50.0 kg

Table (4): Means of studied characters for the 11 types selected increases B families in 2001 growing season which are massed to form the new nucleolus (Breeder seed) of G. 89 in 2002 season.

Selected families	Yield and yield components						Maturity	Fiber properties				Yarn strength 60's carded
								Fiber length		Fiber fineness		
	Seed cotton yield K/F	Lint yield K/F	Lint percentage %	Seed index gm	Boll weight gm	Earliness %		SL 2.5%	SL 50%	Millitex	Micronaire	
25/99-13	12.70	14.40	37.9	10.8	3.3	72	87	33.0	17.0	160	4.0	2280
3/99-22	12.18	14.28	39.0	10.9	3.1	71	86	31.4	15.5	157	4.1	2270
15/99-7	11.36	13.62	40.0	10.8	3.1	75	85	31.6	15.7	157	4.0	2410
21/99-26	11.70	13.62	38.8	10.4	3.0	72	86	31.7	15.8	157	4.0	2125
26/99-32	12.40	13.62	36.6	10.4	3.3	73	87	32.4	16.5	160	4.0	2160
2/99-1	11.98	13.44	37.3	11.0	3.2	70	88	31.5	15.5	163	4.1	2340
18/99-24	11.62	13.44	38.6	10.4	3.1	74	86	31.7	16.0	156	4.0	2255
15/99-31	11.72	13.32	38.0	10.8	3.1	74	88	32.0	16.2	158	4.0	2320
20/99-34	11.28	12.96	38.3	10.9	3.2	74	86	31.8	15.6	157	4.0	2200
2/99-2	10.80	12.30	38.1	11.5	3.1	76	85	31.7	16.0	159	4.1	2380
2/99-15	10.64	12.06	37.8	11.6	3.2	71	85	32.6	16.2	157	4.0	2350
25/99-16	10.72	12.06	37.5	10.7	3.2	75	87	32.5	16.2	155	4.0	2210
$\bar{x}$ selected families	11.59	13.26	38.2	10.9	3.2	73	86	32.0	16.0	158	4.0	2275
$\bar{x}$ comparison s	10.85	12.08	37.2	10.6	3.1	70	85	31.6	15.8	156	4.0	2055

Regarding the results of the yield trial, 12 increased B progenies out of 22 ones were selected according to their superiority in growth and flowering behaviour, yield and agronomic characters, fiber and spinning properties as well as seed quality. Pure seeds of these best 12 progenies, as the last step in such maintaining program, were massed to grow the breeder's stock seed of Giza 89 cultivar in 2002 season, as presented in Table (4), which it proved to be effective in holding the cultivar true to type.

Being then the breeder seed is further increased to produce the foundation seed as a new cultivar strain (wave) carrying the number of the same year it is propagated in.

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المحافظة على النقاوة الوراثية لصنف القطن المصرى جيزه-٨٩

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أجرى هذا البحث بمحطة البحوث الزراعية بالجميزه فى الفترة من ١٩٩٩-٢٠٠٢م.
يوضح هذا البحث كيفية إنتاج بذره المربى والمحافظة على نقاوة صنف جيزه ٨٩.
تم زراعة ٦٠ نبات منتخب من حقل التربية للصنف موسم ١٩٩٩م مكونا ٦٠ عائلة.

وفى نهاية الموسم تم اختيار ٦٠ نبات زرعت موسم ٢٠٠٠م مكونا خطوط ونسل إكثارات أ ، والتى اختير منها ٢٢ عائلة طراز الصنف أدخلت مع مقارنتين هما (جيزه ٨٩/٩٩ ، جيزه ٨٩/٢٠٠٠) فى تجربة قطاعات كاملة العشوائية فى أربعة مكررات موسم ٢٠٠١م لتقييمها للمحصول والتجانس وصفات جودة التيلة والغزل.

وفى نهاية الموسم وحسب الاختبارات التى أجريت تم اختيار ١٢ عائلة نموذجية بناء على الصفات القياسية للصنف والتى تم خلط بذرتها لتكوين النوية الجديدة للصنف (بذره المربى) والتى زرعت موسم ٢٠٠٢م للصنف والتى بالتالى ستزرع إن شاء الله فى موسم ٢٠٠٣م بمزارع الوزارة لتكون السلالة الجديدة للصنف والتى تنتج سنويا تحت مسمى نواه وهى تمثل تقاوى الأساس للصنف والذى بدوره سيدخل فى مراحل إكثار عند المزارعين المتعاقدين بنفس مرتب الصنف بالزراعة العامة لتكون درجتى التقاوى المسجلة والمعتمدة على الترتيب بالقدر الذى يكفى تغطية مساحة الصنف جميعها بتقاوى نقية معتمدة.

وتشير النتائج المتحصل عليها أن السلالة الناتجة بهذه الطريقة تمثل المصدر الجيد للبذره النقية وراثيا والمنتجة بواسطة المربى والتى يمكن بواسطتها المحافظة على النقاوة الوراثية للصنف جيزه ٨٩ إذا أحسنت عملية تداول التقاوى واحتياطات منع الخلط سواء ميكانيكى أو وراثى فى حقول إكثار التقاوى بالزراعة العامة.